CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 88-138

NPDES PERMIT NO. CA0038636

WATER RECLAMATION AND
WASTE DISCHARGE REQUIREMENTS FOR:

EAST BAY REGIONAL PARK DISTRICT AND
EAST BAY DISCHARGERS AUTHORITY
HAYWARD SHORELINE MARSH
HAYWARD, ALAMEDA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board) finds that:

1. East Bay Dischargers Authority (EBDA, hereinafter called the Producer) and East Bay Regional Park District (hereinafter called the Discharger) submitted a joint Report of Waste Discharge dated June 12, 1987, applying for reissuance of a permit to discharge wastes to the Lower San Francisco Bay under the National Pollutant Discharge Elimination System (NPDES). The discharge is presently governed by the Waste Discharge Requirements adopted by the Board on February 16, 1983 in Order No. 83-5 (NPDES Permit No. CA 0038636).

2. The Discharger presently operates a 145-acre man-made marsh system including three freshwater marsh basins (85 acres) and two brackish water basins (60 acres) at Hayward Shoreline Regional Park, adjacent to the San Francisco Bay. Operation of the marsh will utilize up to 20 million gallons per day (MGD) of reclaimed secondary treated wastewater diverted from the adjacent EBDA discharge line as the freshwater influent sources. At the point of diversion, reclaimed wastewater is supplied mainly from the Union Sanitary District, a member agency of EBDA. After being diluted with Bay water, the reclaimed wastewater in the marsh system will be discharged directly to the Lower San Francisco Bay, a water of the United States, through an earthern channel. Attachment A is a location map and is hereby made a part of this Order.

3. While the marsh system will be operated to enhance the beneficial uses of reclaimed wastewater, derive net environmental benefits and meet water quality objectives, it will also be used as a research site to better understand development and management of a marsh utilizing reclaimed wastewater.

4. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives for the Lower San Francisco Bay and contiguous waters.

5. The beneficial uses of the Lower San Francisco Bay and contiguous water bodies are:

a. Industrial service supply.
b. Navigation.
c. Water contact recreation.
d. Non-contact water recreation.
e. Ocean commercial and sport fishing.
f. Wild life habitat.
g. Preservation of rare and endangered species.
h. Fish migration.
i. Fish spawning.
j. Shellfish Harvesting.
k. Estuarine Habitat.

6. The Basin Plan prohibits discharge of wastewater which has particular characteristics of concern to beneficial uses at any point at which the wastewater does not receive a minimum initial dilution of at least 10:1 or into any non-tidal water, dead-end slough, similar confined waters, or any immediate tributaries thereof. An exception to the above discharge prohibition can be considered where a discharge is approved as part of a reclamation project, or where it can be demonstrated that net environmental benefits will be derived as a result of the discharge.

7. As a reclamation project, the proposed discharge from the marsh system qualifies for Board consideration of an exception to the discharge prohibition.

8. The Board has adopted Resolution No. 77-1 specifically establishing its Policy regarding the use of wastewater to create, restore, maintain and enhance Marshlands. The Policy also specifies the criteria under which it would consider exceptions to the Basin Plan for Marshes. In conformance with the Policy, the Discharger has submitted a technical report, the "Hayward Marsh Expansion Management Plan". With certain minor exceptions, the proposal satisfies the requirements of the Basin Plan and Policy by demonstrating the beneficial uses of the reclaimed wastewater and benefits that will be gained from the project and the Discharger's commitment to satisfactorily operate and manage the Marsh to meet water quality objectives. There are minor deficiencies in the Marsh Management Plan which cannot be resolved without gaining more operational experience:

   (a) current state-of-the-art does not allow for determination of the exact optimum flow to maintain water quality objectives and beneficial uses (this is an objective of the Marsh operations and research);

   (b) whether the discharge from the marsh may require areas of the Bay to be closed to shellfish harvesting.

9. Section 13523 of the California Water Code provides that a regional board, after consulting with and receiving the recommendations of the State Department of Public Health, and if it determines such action to be necessary to protect the public health, safety, or welfare, shall prescribe water reclamation requirements for water which is used or proposed to be used as reclaimed water. The use of

reclaimed water for the purposes specified in paragraph 2 could affect the public health, safety, or welfare, and requirements for those uses are therefore necessary in accordance with the Water Code.

Board Basin Plan requirements for reclaimed water use such as proposed would normally require a median coliform limit of 23 MPN/100ml to protect public health. The Discharger has proposed a plan to State Department of Health Services (SDOHS) to restrict public access to the Marsh to allow for consideration of a higher coliform limit. The SDOHS has reviewed and concurred, by letter of January 27, 1983, with the Discharger's proposal (with additional recommended restrictions) and finds that a median effluent coliform limit of 240 MPN/100ml to the Marsh would be adequate at this time to protect public health. SDOHS concurrence also includes the provision that the coliform limit be subject to review if shellfish harvesting is proposed and considered in nearby waters.

Based upon the information available, an exception to Board Basin Plan requirements that would allow a median effluent coliform limit to the Marsh of 240 MPN/100ml is appropriate because it will protect known beneficial uses, net environmental benefits still appear significant, the action is not irreversible and can be reviewed, and the exception has the concurrence of the SDOHS.

10. The Discharger has adopted a Conditional (Mitigated) Negative Declaration for the proposed project in accordance with the California Environmental Quality Act (CEQA). Significant water quality impacts identified in the Negative Declaration determined that the project would destroy a seasonal wetland, but it would be mitigated by the project's creation of a year-round marsh operated to create and enhance both fresh and brackish marsh habitat and vegetation.

11. The additional Board concerns identified in Finding 8 (above) will be eliminated or mitigated by adoption of these requirements regulating the discharge. Specifically, the following measures will be required or implemented by the producer and/or discharger:

    a. Requirements to operate the marsh so that water quality objectives are met, beneficial uses are not impaired, and a nuisance is not created.

    b. Treatment requirements and monitoring to protect the potential for shellfish harvesting.

    c. Development of a contigency operations plan to protect the Bay and to protect, operate, and maintain the marsh during periods when the Producer cannot supply reclaimed wastewater (e.g., treatment plant upsets, etc.).

    d. Implementation of a program to minimize public contact with reclaimed wastewater.

12. Some effluent limitations in this Order are derived from promulgated

federal guidelines (e.g., secondary for POTW), some from the Basin Plan. Together, they are considered the Best Available Technology in the judgement of the Board.

However, the Producer and the Discharger are also hereby notified that the Board will consider amendment of these requirements as necessary to protect other beneficial uses (e.g., shellfish harvesting). The consideration of amendments will be dependent upon the demonstrated effects of the marsh operations on the other beneficial uses of the waters of the State.

13. This Order serves as an NPDES permit, adoption of which is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.

14. The Producer, the Discharger and interested agencies and persons have been notified of the Board's intent to reissue waste discharge requirements for this discharge and have been provided with the opportunity for a public hearing and the opportunity to submit their written views and recommendations.

15. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, that the Producer and the Discharger, in order to meet the provisions contained in Division 7 of the California Water code, and regulations adopted thereunder, and the provisions of the Federal Water Pollution Control Act as amended, and regulations and guidelines adopted thereunder, shall comply with the following:

A. Producer and Discharger Effluent Prohibitions

1. The Producer (EBDA) shall not discharge reclaimed wastewater from the Producer's facilities to the Marsh that is not secondary treated wastewater. The Discharger (EBRPD) shall not discharge treated wastewater that has not been circulated through the Marsh and diluted with Bay water prior to discharge to Lower San Francisco Bay.

2. Discharge to the Northwest Channel is prohibited without prior approval of the Executive Officer.

3. Neither the treatment, nor the discharge of reclaimed wastewater nor the management of the Marsh shall create a nuisance as defined in Section 13050 (m) of the California Water Code.

B. Producer and Discharger Effluent Limitations:

1. The discharge of reclaimed wastewater to the Marsh that does not meet the following limits is prohibited:

Constituents	Units	Monthly Average	Weekly Average	Daily Maximum	Instantaneous Maximum
a. 5-day BOD	mg/l	30	45		
b. Suspended Solids	mg/l	30	45		
c. Oil & Grease	mg/l	10	-	20	
d. Settleable Solids	ml/l-hr	0.1	-	0.2	
e. Chlorine Residual	mg/l	-	-	-	0.0[1]

(Note: [1] Below the limit of detection in standard test methods as measured after effluent flows through Basin 1.)

f. Total Coliform Organisms — MPN/100ml — At some point in the treatment process prior to discharge, not to exceed a five sample median of 240 MPN/100ml nor a maximum of 10,000 MPN/100ml.

g. The pH of the discharge shall not be less than 6.5 nor greater than 8.5 (in pH units).

h. TOXICITY: The survival of test organisms (two species: (1) stickle back, and (2) rainbow trout or fathead minnow) in 96 hour flow-through bioassays of the effluent shall achieve a median 90% survival for three consecutive samples and a 90 percentile value of not less than 70% survival for 10 most recent consecutive samples.

(For all the items listed above, with the exception of item e., the Producer and/or Discharger may demonstrate compliance with these requirements at the Publicly Owned Treatment Works (e.g., Union Sanitary District) discharging to the Producer's outfall interceptor, or at a point agreeable to the Executive Officer.)

2. All above ground equipment, including pumps, piping, and valves, etc. which may at any time contain waste shall be adequately and clearly identified, and the Producer or the Discharger shall make all necessary provisions to inform the public that the liquid contained is unfit for drinking.

C. Marsh and Bay Receiving Water Limitations

1. The Discharger shall provide sufficient circulation through the marsh to maintain the following limits of quality as shown:

Marsh and Bay:

a. No visible, floating, suspended, or deposited oil or other products of petroleum origin;

b. No floating, suspended, or deposited macroscopic particulate matter or foam of sewage origin;

c. No bottom deposits or aquatic growths in quantities sufficient to create a nuisance condition;

d. No toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on wildlife, shellfish or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

Bay only:

e. Dissolved oxygen	5.0 mg/l minimum. Median dissolved oxygen for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause lesser concentration(s) than those specified above to exist, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.
f. Un-ionized Ammonia	0.025 mg/l as N, annual median 0.4 mg/l as N, maximum at any time
g. Nutrients	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

h. No increase in turbidity above present natural background levels in San Francisco Bay by more than the following:

San Francisco Bay Background	Incremental Increase
50 units (JTU)	5 units, maximum
50 - 100 units	10 units, maximum
100 units	10% of background, Maximum

i. pH — No changes greater than 0.5 units in normal ambient Bay pH levels.

2. The discharge shall not cause a violation of any applicable

water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

D. Provisions

1. The requirements prescribed by this Order supersede the requirements prescribed by Order 83-5. Order No. 83-5 is hereby rescinded.

2. Where concentration limitations in mg/l are contained in this permit, the following mass emission limitations shall also apply as follows:

   (Mass Emission Limit in lbs/day) = (Concentration Limit in mg/l) x (8.34) x (Actual Flow in MGD Averaged Over the Time Interval to which the Limit Applies).

3. The Producer and Discharger shall comply with all sections of this Order immediately upon adoption.

4. The Producer and Discharger shall comply with the self-monitoring program as adopted by the Board and as may be amended by the Executive Officer.

5. The Discharger shall comply with all applicable items of the attached "Standard Provisions, Reporting Requirements and Definitions" dated December, 1986.

6. The Board expects the Discharger to operate and maintain the Marsh without chemical treatment (i.e., herbicides and algaecides) and to implement all feasible measures prior to using chemical treatment. If chemical treatment is proposed by the Discharger, then such treatment shall be in accordance with the provisions of the Basin Plan.

7. The Producer and the Discharger shall implement the following approved programs/plans: (a) a Marsh Contigency Operations Plan for the protection of Marsh and Bay during contigency operations (e.g., assurances that only secondary treated wastewater enters the marsh at proper coliform levels, for operations during periods when secondary treated wastewater can not be discharged to the marsh, etc.), (b) a program to minimize public contact with the reclaimed wastewater, and (c) a special receiving water monitoring plan and program to assess impacts on nearshore biota (ref. State Department of Fish and Game letter of 1/24/83). A copy shall also be sent to State Department of Health Services.

8. For purposes of enforcement of these requirements the Board will consider the Discharger to have the primary responsibility for

the operation of the Marsh to meet water quality objectives and prevention of nuisance and the Producer to be responsible for supplying treated reclaimed wastewater as specified in B.1 (excluding B.1.e). The dechlorination basin (Basin 1) is not to be considered waters of the State but as part of the treatment process under the responsibility of the Discharger.

9. The Discharger shall file a status report with the Board not later than August 31, 1991, on operations of the Marsh and derived net environmental benefits through June 30, 1991.

10. This Order expires September 21, 1993. The Discharger must file a report of waste discharge in accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code not later than 180 days in advance of such expiration date as application for issuance of new waste discharge requirements.

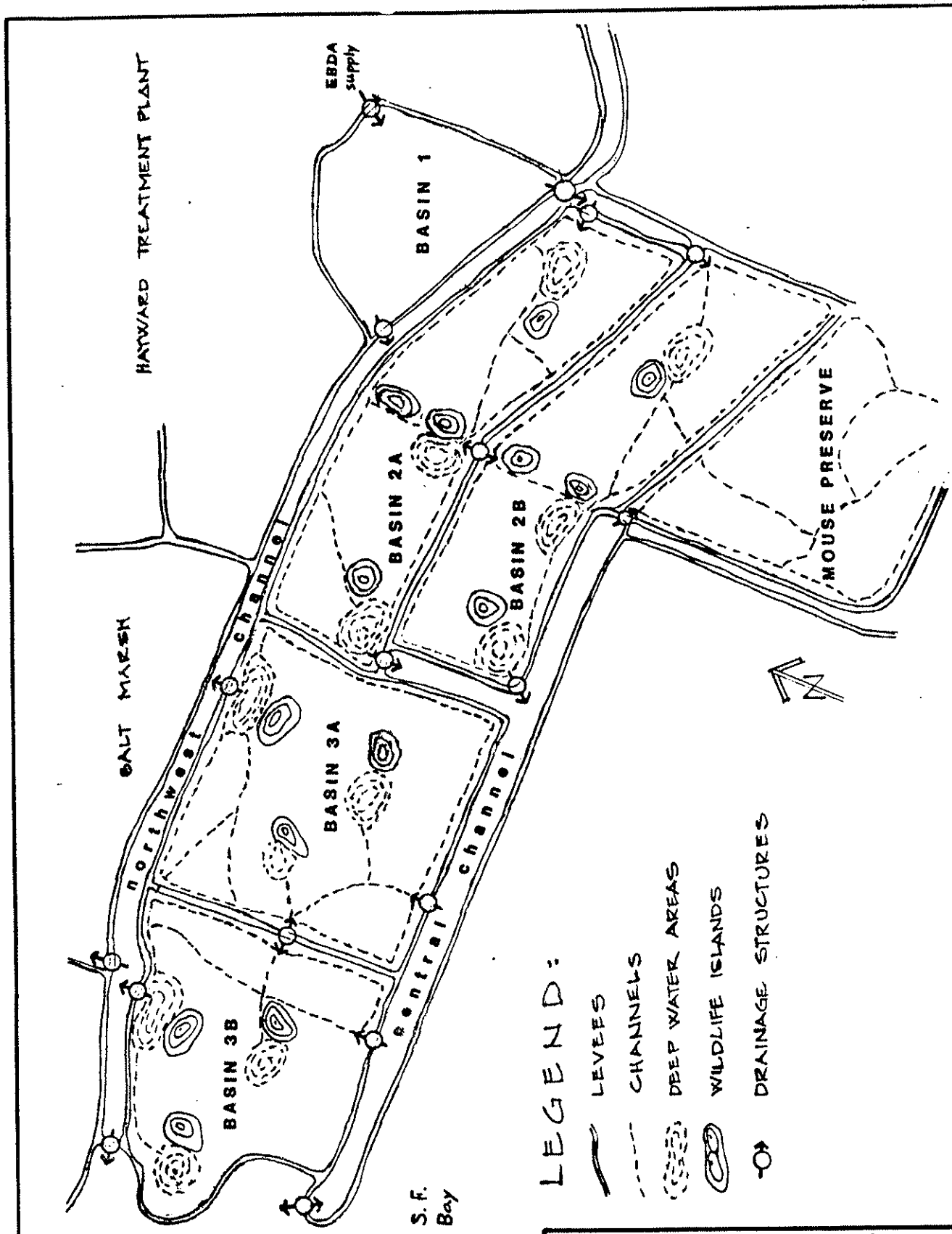
11. This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective 10 days after date of its adoption provided the Regional Administrator, Environmental Protection Agency, has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on September 21, 1988.

STEVEN R. RITCHIE
Executive Officer

Attachments:
Standard Provisions, Reporting
Requirements and Definitions (dated December, 1986)
Self-Monitoring Program
Resolution 74-10

[File No. 2199.9209]
[Originator/RL]
[Reviewer/SAH]



STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ATTACHMENT A: LOCATION MAP,
HAYWARD SHORELINE MARSH,
HAYWARD, ALAMEDA COUNTY

DRAWN BY:	DATE:	DRWG. NO.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

FINAL

SELF-MONITORING PROGRAM

FOR

HAYWARD SHORELINE MARSH

EAST BAY REGIONAL PARK DISTRICT

EAST BAY DISCHARGERS AUTHORITY

HAYWARD, ALAMEDA COUNTY

NPDES NO. CA0038636

ORDER NO. 88-138

CONSISTS OF

PART A, dated 12/86

AND

PART B

PART B

HAYWARD SHORELINE MARSH

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT

Station	Description
A-1	At any point in the Producer's treatment facilities headworks at which all waste tributary to the system is present and preceding any phase of treatment. (When there are more than one POTW serving as the producers, each of the POTWs should have a sampling station.)

B. EFFLUENT

Station	Description
E-1	At any point in the outfall from the Producer's treatment facilities between the point of discharge and the point at which all waste tributary to that outfall is present. (May be the same as E-1-D.) See attached map.
E-1-D	At any point in the disinfection facilities for Waste E-1 at which point adequate contact with the disinfectant is assured. See attached map.

C. RECEIVING WATERS

Station	Description
C-2A, C-2B, C-3A and C-3B	At a point in Basins 2A, 2B, 3A, and 3B, respectively, satisfactory to the Executive Officer, that is representative of the Basin(s).
C-R	At a point in Lower San Francisco Bay satisfactory to the Executive Officer that is representative of Lower San Francisco Bay where the Marsh discharges.
C-R-B	At a point in Lower San Francisco Bay, satisfactory to the Executive Officer, that is representative of the portion of the

	Lower San Francisco Bay which is not being affected by the Marsh discharge. (This is a reference sampling point to provide background information of the Lower San Francisco Bay.)

D. LAND OBSERVATIONS

Station	Description
L-1 through L-'n'	Located along the perimeter levee at equidistant intervals not to exceed 500 feet. (A sketch showing the locations of these stations will accompany each report.)

II. SCHEDULE OF SAMPLING, ANALYSIS AND OBSERVATIONS

The schedule of sampling, analysis and observation shall be as given in Table I.

III. MODIFICATION OF PART "A" (dated 12/86)

Includes the following modifications of Part A:

1. Paragraph E.3 shall apply to the Basins with the following addition:

   "(3) Special attention shall be paid to observations for vector nuisance and signs of waterfowl botulism per Marsh Management Plan."

2. Paragraph G.4 should include the following addition:

   "The Producer and the Discharger may file separate self-monitoring reports detailing compliance with the Order. A copy of all Marsh monitoring reports shall also be sent to the State Department of Health Services."

3. Paragraph G.5 should include the following addition:

   "The Annual Report narrative (and data as appropriate) should stress the operations of the Marsh to meet with water quality objectives, enhance beneficial uses of reclaimed wastewater, protection of off-site beneficial uses, and the net environmental benefits."

I, Steven R. Ritchie, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and

document compliance with waste discharge requirements established in Regional Board Order No. 88-138.

2. Is effective on the date shown below.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger, and revisions will be ordered by the Executive Officer.

STEVEN R. RITCHIE
Executive Officer

Effective Date: 9/21/88

Attachments: Table I

TABLE I

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	A-1		E-1 & E-1-D				C-2A, C-2B C-3A, C-3B		C-R		C-R-E		L
TYPE OF SAMPLE	C-24	G	C-24	G			G	0	G	0	G	0	
Flow Rate (mgd)			D										
BOD, 5-day, 20° C, or COD (mg/l & kg/day)	5/W		5/W										
Chlorine Residual & Dosage (mg/l & kg/day)				D									
Settleable Matter (ml/1-hr. & cu. ft./day)				D									
Total Suspended Matter (mg/l & kg/day)	5/W		5/W										
Oil & Grease (mg/l & kg/day)			2/M(3)										
Coliform (Total (MPN/100 ml) per req't				3/W			W(2)						
Fish Toxicity, 96-hr. TL_{50} % Survival in undiluted waste				M(1)									
Ammonia Nitrogen (mg/l & kg/day)													
Nitrate Nitrogen (mg/l & kg/day)													
Nitrite Nitrogen (mg/l & kg/day)													
Total Organic Nitrogen (mg/l & kg/day)													
Total Phosphate (mg/l & kg/day)													
Turbidity (Jackson Turbidity Units)									M		M		
pH (units)				D			W		M		M		
Dissolved Oxygen (mg/l and % Saturation)							W		M		M		
Temperature (°C)													
Apparent Color (color units)													
Secchi Disc (inches)													
Sulfides (if DO < 5.0 mg/l) Total & Dissolved (mg/l)							W						
Arsenic (mg/l & kg/day)			M				(4)		M				
Cadmium (mg/l & kg/day)			M				(4)		M				
Chromium, Total (mg/l & kg/day)			M				(4)		M				
Copper (mg/l & kg/day)			M				(4)		M				
Cyanide (mg/l & kg/day)			M				(4)		M				
Silver (mg/l & kg/day			M				(4)		M				
Lead (mg/l & kg/day)			M				(4)		M				

OS 2

TABLE I (continued)
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	A-1		E-1 & E-1-D				C-2A, C-2B, C-3A, C-3B		C-R		C-R-E	L	
TYPE OF SAMPLE			C-24	G			G	O	G	O	G	O	
Mercury (mg/l & kg/day)			M				(4)		M				
Nickel (mg/l & kg/day)			M				(4)		M				
Zinc (mg/l & kg/day)			M				(4)		M				
PHENOLIC COMPOUNDS (mg/l & kg/day)			M				(4)		M				
All Applicable Standard Observations				D				W		W		W	
Bottom Sediment Analyses and Observations													
Total Identifiable Chlorinated Hydrocarbons (mg/l & kg/day)													
Un-ionized Ammonia (mg/l)							M		M				
Chlorophyll 'A' (ug/l)									M		M		
PAHs			M				(4)		M				

LEGEND FOR TABLE

TYPES OF SAMPLES

G = grab sample
C-24 = composite sample - 24-hour
C-X = composite sample - X hours (used when discharge does not continue for 24-hour period)
Cont = continuous sampling
DI = depth-integrated sample
BS = bottom sediment sample
O = observation

TYPES OF STATIONS

I = intake and/or water supply stations
A = treatment facility influent stations
E = waste effluent stations
C = receiving water stations
P = treatment facilities perimeter stations
L = basin and/or pond levee stations
B = bottom sediment stations
G = groundwater stations

FREQUENCY OF SAMPLING

E = each occurence
H = once each hour
D = once each day
W = once each week
M = once each month
Y = once each year

2/H = twice per hour
2/W = 2 days per week
5/W = 5 days per week
2/M = 2 days per month
2/Y = once in March and once in September
Q = quarterly, once in March, June, Sept. and December

2H = every 2 hours
2D = every 2 days
2W = every 2 weeks
3M = every 3 months
Cont = continuous

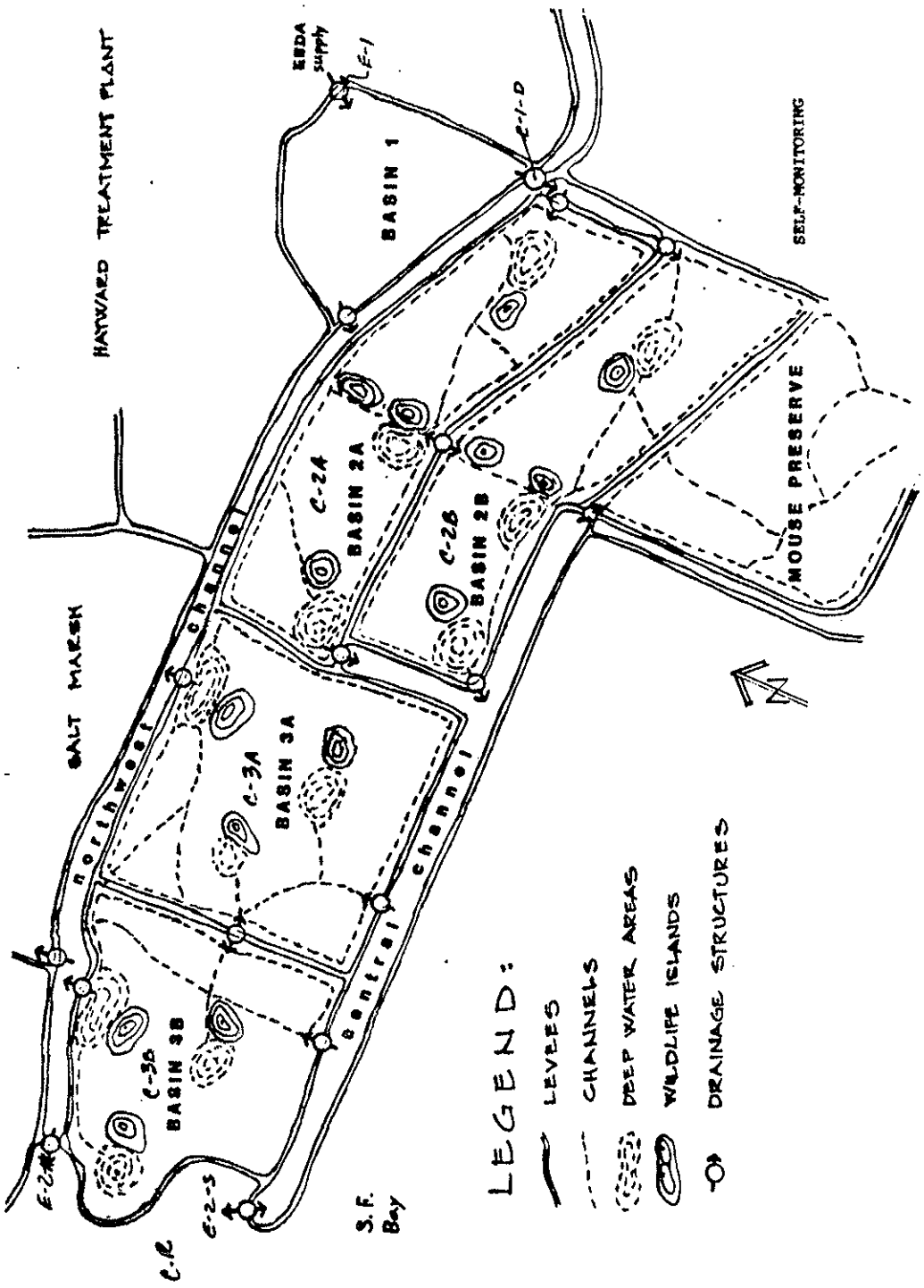
Note for Table 1

(1) Wastewater sample used in flow through bioassay test should be taken from a point where chlorine has been dissipated.

(2) Total coliform shall be taken at the outlet of Basin 2A or 2B only.

(3) Each Oil and Grease sample shall consist of three grab samples taken at two-hour intervals during the sampling date, with each grab being collected in a glass container and analyzed separately. Results shall be expressed as a weighted average of the 3 values based upon the instantaneous flow rates occurring at the time of each grab sample.

(4) The Discharger shall conduct monthly receiving water monitoring at station C-3B and quarterly monitoring at the other three marsh stations. The Executive Officer may reduce sampling frequency at station C-3B after one year of monthly monitoring has been completed.



STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SAMPLING STATIONS,
HAYWARD SHORELINE MARSH,
SELF-MONITORING PROGRAM

DRAWN BY:	DATE:	DRWG. NO.